

IMPROVEMENTS TO HANDS FREE MOBILE PHONES

FIELD OF THE INVENTION

This invention relates to an improvement to hands free mobile phone technology and particular relates to a holder to conveniently hold the ear piece and a microphone of a hands free mobile telephone accessory.

BACKGROUND ART

Mobile telephones are extremely widely used throughout the world. Recently, there have been some concerns regarding the safety of mobile telephones and especially with respect to positioning of the mobile telephone close to the person's head during use. For this reason, it would be desirable to ensure that the mobile telephone is spaced substantially away from the person's head. Many countries and states have also enacted legislation which makes it an offence to use a mobile telephone while driving a vehicle.

For these reasons, hands free kits and accessories are becoming very popular. One particularly popular hands free accessory, and one which forms part of the present invention, is of the type which has a ear piece and a microphone both attached to a common flexible phone line and spaced apart from each other. The line has a plug which allows it to be plugged into a socket on the bottom of the telephone. This type of accessory allows the telephone to be clipped to a person's belt while still using the telephone.

While this accessory overcomes alleged health risks associated with mobile telephones placed too close to a person's head, and allows a mobile telephone to be used while driving, there are some disadvantages with the accessory. One disadvantage is that while the ear piece can be plugged into a person's ear, the microphone is loose and will simply dangle. For this reason, a clip is provided on the line which can clip to a person's blouse or shirt adjacent the neck area to hold the accessory in place. The clips themselves are fiddley to use and cannot always be correctly positioned. Another disadvantage with the accessory is that not many people wish to walk around with an ear plug plugged into their ear when the phone is not in

use. For this reason, every time the phone needs to be used, the ear piece must be attached to the person's ear, the clip must be attached to the person's clothing, and often further positioning is required before a call can be taken.

5 Another disadvantage with this arrangement is when wearing spectacles, neckwear or headwear, the line can be snagged or caught which can cause pain if the ear piece is positioned in the ear. The line can also become snagged or tangled on passing objects if care is not taken.

OBJECT OF THE INVENTION

10 The present invention is directed to a holder for this type of telephone accessory and which will hold the ear piece and the microphone at spaced apart locations such that when the mobile telephone needs to be used, the holder can be simply held against the person's head. The holder does not contain any of the radiation emitting devices in the mobile
15 telephone.

 The hand piece can hold the ear piece and the microphone of the accessory and the accessory can be permanently plugged into the mobile telephone. When the mobile telephone needs to be used, the holder can simply be placed against the person's head for use.

20 The holder does away with the messy and finicky requirement to position the ear piece and the microphone using clips and other devices every time a call is made and does away with the need to keep the ear piece in place when the phone is not used.

 In one form, the invention resides in a holder for a hands free
25 mobile telephone accessory of the type which has an ear piece and a microphone both attached to a common flexible phone line and spaced apart from each other, the line able to be plugged into or relative to the telephone, the holder having an ear piece attachment means (EAM) and a microphone attachment means (MAM) which are spaced apart, the construction and
30 arrangement being that the holder can be held next to a persons head with the EAM being in or adjacent the persons ear, and the MAM being positioned to pick up speech, thereby doing away with the need to attach the

microphone to clothing and to insert the ear piece every time the phone is to be used.

The holder can come in a great variety of shapes and sizes, and can be made of single or multiple components. The holder should however be able to attach, hold, clip or otherwise support the ear piece and microphone of the accessory. This means that the accessory can be simply purchased from any suitable outlet and can then be attached (usually by the customer) to the holder which will make the accessory easier and more convenient to use.

The holder may be in the form of a tubular member which can be split to open up into two halves with the inside of the tubular member having some sort of means to hold the ear piece and the microphone of the accessory. In an alternative form, the inside of the tube can have an insert of resilient foam material which will hold the ear piece and the microphone of the accessory in place. The ear piece may be held in such a manner that it can be slightly pulled out of the holder such that the ear piece can be inserted into the person's ear if desired.

In a second alternative, the holder may be in the form of a substantially plate-like member which can be curved to approximately a telephone handset. The plate-like member may be provided with a plurality of spaced keyhole-type slots which can accommodate excess length of the wire which is part of the accessory.

In a third alternative, the holder may have an elongate substantially rectangular body made from two parts hinged together which can be opened up to allow the accessory to be inserted into the holder. The inside of the body may have compartments to hold the microphone and various other arrangements such as notches to hold the line and the ear piece. The ear piece may have the ability to be slightly pulled out of the body to allow it to be attached to a person's ear.

In a fourth alternative, the body may again be formed from two halves which can be opened up to insert the accessory. An integrally formed clip can be provided to allow the body to be clipped on the person's belt. A

shroud can be provided about the ear piece area to cut down on extraneous noise.

In a fifth alternative, the holder may be formed in such a way that it can be shaped to suit the person. For instance, the holder may have a substantially cylindrical body with an upper and lower end piece which can be removed to allow the ear piece and the microphone to be inserted. The cylindrical body may be formed from a material which can be bent but which will hold its shape in the bent position.

In a further general variation of the invention, the portion of the line which extends from the microphone of the accessory to the mobile telephone can be a snag point when not required. For this reason, the holder may be provided with some form of line extension and retraction means.

In a sixth alternative of the invention, the holder may have an internal spool which may be spring biased or otherwise biased to naturally retract the line. When required, the holder can be simply unclipped from the person's belt, pocket, or other area and pulled up to the person's head which will cause the line to unwind from the holder while the line is still plugged into the mobile telephone. Alternatively, a manual winding system or other type of winding system can be used.

In a seventh alternative, the holder may have an attachment means to attach the holder onto the person's ear, and in one form, this may be in the form of a looped portion that can loop behind the person's ear.

In an eighth alternative, the holder may be attached to eyewear to position the holder relative to the person's head.

In a ninth alternative, the holder can be telescopic or other extendible and retractable in length.

If a winding system is not used for the phone line, the holder can be provided with lugs or other projections, recesses and the like to allow the line to be manually wound, looped, or otherwise contained relative to the holder to minimise snagging or catching of the line when not in use.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be described with reference

to the following drawings in which

Figures 1A-1C illustrate various views of a holder according to a first embodiment.

Figures 2A-2C illustrate various views of a holder according to a second embodiment.

Figures 3A-3D illustrate various views of a holder according to a third embodiment.

Figure 4A and 4B illustrate various views of a holder according to a fourth embodiment.

Figures 5A-5C illustrate various views of a holder according to a fifth embodiment.

Figures 6A-6G illustrate various views of a holder according to a sixth embodiment.

Figures 7A-7E illustrate various views of a holder according to a seventh embodiment.

Figures 8A-8C illustrate various views of a holder according to a eighth embodiment.

Figures 9A and 9B illustrates a holder according to a ninth embodiment.

Figure 10 illustrates a holder according to a tenth embodiment.

Figures 11A-11E illustrate various views of a holder according to a eleventh embodiment.

BEST MODE

Referring to the drawings and initially to Figures 1A-1C, there is illustrated a holder 10 for a hands free mobile telephone accessory of the type which has an ear piece 11 and a microphone 12 which are both attached to a common flexible phone line 13. The ear piece 11 and the microphone are spaced apart on line 13. The far end of line 13 is provided with a plug 14 (illustrated only in Figure 6D) which plugs into the bottom of a mobile phone. This type of accessory is extremely well-known and widely used by customers to keep the "hot" part of the mobile telephone away from their head.

In Figures 1A-1C, holder 10 consists of a cylindrical tube 15

which is entirely hollow and is open at both its upper end and lower end. The side wall of tube 15 is formed with a number of openings 16 (see Figure 1C to allow microphone 12 to pick up sound. The holder 10 has an ear piece attachment means (EAM) and a microphone attachment means (MAM). In this embodiment, the EAM and the MAM are provided by a flexible foam insert 17 which moulds around microphone 12 and gently clamps microphone 12 next to openings 16. Similarly, the stem portion 18 of ear piece 11 is gently clamped in place by the top portion of insert 17.

Holder 10 consists of a split hinged tube (see Figure 1B) which can be prised open with a person's fingernail, screw driver and the like to open into two halves. An example of this is illustrated in Figure 3A. When the holder is opened, the accessory can be placed in the holder and the microphone 12 and the ear piece 11 can be placed in their respective positions. The foam insert 17 is then placed into the holder and the halves are closed up and clipped shut. Once this occurs, ear piece 11 projects out the top of the holder (see Figure 1C) while microphone 12 is within the body of holder. An attachment clip 19 can be provided to allow the holder to be attached to a shirt pocket, belt, or other convenient place. The remainder of line 13 extends from the bottom of holder 10 and can be plugged into the mobile telephone.

Figures 2A-2C illustrate a second embodiment. In this embodiment, holder 20 has a thin rectangular plate-like body best illustrated in Figures 2B and 2C which can be slightly curved to provide better positioning of ear piece 11 and microphone 12 relative to the person's ear and mouth. Excess telephone line 13 can be looped about keyhole-type slots 21 which are spaced along the holder. Microphone 12 is held in place by having the phone line immediately above and below it attached to a keyhole-type slot 21 and a similar mechanism is used to support ear piece 11.

The holder of Figures 1 and 2 provide an easy mechanism to take a phone call from a mobile phone as all that is required is to pick up the holder and hold it next to the person's head to take the phone call. Ear piece 11 can be slightly pulled out of the holder or projects from the holder such

that it can be lodged in the person's ear for better sound quality.

Figures 3A-3D show a third embodiment of the invention. In this embodiment, holder 22 is similar to holder 10 illustrated in Figure 1A except that the holder is rectangular when viewed in plan. Holder 22 is formed from two halves which can be opened up as illustrated in Figure 3A and subsequently closed as illustrated in Figure 3 once the accessory has been placed inside the holder. Holder 22 has various internal notches 23A, 23B which clips the telephone line in place in the holder. Notch 23 also forms one end wall of a compartment 24 in which the microphone can be held in place.

The other end of the holder is formed with a pair of spaced apart larger notches 25 which function to clip the stem portion 18 of ear piece 11 (see Figure 3C). The outer wall of holder 20 has openings 16 behind which microphone 12 is placed. In this arrangement, a foam insert is not used but instead the notches and various internal compartments are used to hold the telephone accessory in place.

Figures 4A and 4B illustrate a fourth embodiment. In this embodiment, holder 26 is again formed from two hinged halves which can be opened up to allow the telephone accessory to be inserted into the holder. Figure 4B shows the telephone accessory comprising ear piece 11, line 13, and microphone 12 positioned inside the holder. Ear piece 11 can be slightly pulled out of its surrounding area to be inserted into a person's ear which allows the holder to dangle from the person's ear. An attachment clip or hook 27 is provided to allow the holder to be belt mounted, pocket mounted, or otherwise attached. If desired, a shroud of sorts 27, illustrated in dotted outline in Figure 4B, can be used to cut down on outside noise.

Figures 5A-5C illustrate a fifth embodiment of the invention. In this embodiment, holder 28 is tubular in construction but instead of having a longitudinal split to allow it to be opened in the manner illustrated in Figure 3A, holder 28 has a detachable upper end portion 29 and a detachable lower end portion 30. In use, end portions 29 and 30 can be removed and the accessory can be inserted through the holder tubular body after which the end portions 29, 30 can be replaced. Holder 28 has a main body portion 31

which can be flexed or curved as illustrated in Figure 5C but will hold its curved shape. This allows the holder to be adjusted to suit an individual person's needs.

Figures 6A-6E illustrate a sixth embodiment of the invention. In this embodiment, excess telephone line 13 can be wound out or in the holder 32 by virtue of a spool 33. Spool 33 is positioned within holder 32 in a convenient place and is preferably pre-tensioned to naturally retract line 13 into holder 32. Figure 6D illustrates a plug 14 which plugs line 13 into the base of a mobile telephone (not illustrated). This type of holder is more conveniently attached either to the mobile telephone or next to the mobile telephone to cause as much of line 13 to be retracted in holder 32. When a call is to be made, the holder can be simply unclipped and raised to the person's head which will cause line 13 to be unwound from spool 33. When the call is complete, holder 32 can be replaced at or adjacent the mobile telephone which will cause line 13 to be rewound into holder 32.

Figures 6F and 6G show a variation where holder 34 can have ear piece 11 projecting sufficiently therefrom to allow the ear piece to hang off the person's ear.

Figures 7A-7E show a seventh embodiment of the invention. This embodiment is similar to the embodiment illustrated in Figures 6A-6G in that an internal spool is provided within holder 36 to provide a telephone line retraction system.

Figures 8A-8C show a similar arrangement again where holder 37 is provided with an internal spool 38. In this version, a thumb depressible button 39 is provided which, when depressed, will push out ear piece 11 sufficiently to allow the ear piece to be attached to a person's ear. Some form of stop mechanism 40 is provided to lock ear piece 11 in the extended position.

Figures 9A and 9B illustrate a ninth embodiment of the invention. In this embodiment, holder 41 is in two halves (not shown) which can be opened up to allow the telephone accessory to be inserted into the holder. Holder 41 has an attached loop portion 42 which allows the holder to

be attached about a person's ear to hold the entire arrangement in place.

Figure 10 illustrates a tenth embodiment where holder 43 again accommodates the telephone accessory but where holder 43 has a portion 44 which allows the holder to be suspended from eyewear 45. Ear piece 11 extends from holder 43 and can be fitted to a person's ear.

Figures 11A-11E illustrate an eleventh embodiment of the invention. This embodiment basically describes a telescoping holder 46 which in the embodiment has an outer portion 47 and an inner portion 48 which can slide within outer portion 47 between an extended position illustrated in Figures 11A and 11B and a retracted position illustrated in Figures 11C-11E. This allows the holder to be extremely compact when in the retracted non-use position. Inner portion 48 is tapered as illustrated in Figure 11A which allows ear piece 11 to be fitted to a person's ear.

For the embodiments which do not have a line retraction system (for instance a spool), the outside of the holder may be provided with some form of line attachment means 50 which allows the telephone line to be looped or otherwise held relative to the holder when not in use.

In Figures 11A-11E, a thumb slide 51 is provided to slide portion 48 in and out of portion 47. Figures 11E has an internal spool 52.

It should be appreciated that various other changes and modifications may be made to the embodiments describes without departing from the spirit and scope of the invention as claimed.